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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/526,412

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EXAMINER

RECEK, JASON D

ART UNIT

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/526,412	Applicant(s) STAHL ET AL.	
	Examiner JASON RECEK	Art Unit 2442	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 25 June 2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-17 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-17 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

This is in response to the amendment filed on June 25th 2009.

Status of Claims

Claims 1-17 are rejected under 35 U.S.C. 103(a).

Response to Arguments

1. Applicant's arguments filed 6/25/09 have been fully considered but they are not persuasive. Applicant argues:
2. A) That Golden does not teach "a plurality of additional output queues for reserved connections, wherein each additional output queue is established and associated only with reserved connection data packets for one reserved connection path" because Golden states that the invention would work whether or not switches maintain multiple queues per port (pg. 6-7). Applicant further asserts that because the prioritization scheme taught by Golden works on a switch which only maintains one queue that Golden does not teach the prioritization scheme of the present invention which establishes a plurality of queues with a connection.
3. In Response to A) Applicant misstates Golden when discussing col. 11 ln. 62-65. Golden discloses "whether or not such switches maintain more than **one port queue**

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per switch port". In applicant's arguments (pg. 7-8), applicant repeatedly states that Golden suggested it would operate on a switch with a single queue (i.e. "Golden's method of prioritizing traffic is operative on a switch with only one queue"). This is incorrect. Golden disclosed it could operate on a switch with one queue per port, but not one queue as applicant asserts. For at least this reason, applicant's argument concerning this portion of Golden is not persuasive. Examiner would also like to point out this portion of Golden is prefaced with the statement "As an alternative..." thus this is merely indicating one possibility of how the system of Golden could operate. Second, the claims do not require establishing a plurality of queues with a single connection.

4. Applicant argues B) That the "many-to-one" argument was a misstatement (pg. 8).

5. In Response to B) With respect to the "many-to one" argument (pg. 8), examiner accepts applicant's explanation that this argument was a misstatement. The present argument asserts the invention provides a many-to-one mapping of queues to traffic. This is fine, however the claims only require a one-to-one mapping, "**each** queue is established and associated only with reserved connection data packets for **one** reserved connection path". The claims do not require multiple queues to be assigned to each connection. Thus this argument is not persuasive since it is directed towards features not in the claims.

6. Applicant argues C) Applicant argues that Golden makes a general statement that reserved connection packets can be forwarded to high priority queues and thus is similar to Metin (pg. 9).

7. In Response to C) This argument is not persuasive. As discussed above, this line is preceded by the words "as an alternative" therefore it is submitted this is not the only mode of operation that Golden teaches. Golden discloses that switches store reserved connection information (col. 11 ln. 7-17). Golden discloses that the invention operates by the switch comparing data in the packet header to data stored for a reserved connection (col. 11 ln. 25-34). Golden teaches forwarding a packet through a reserved port (which necessarily has a reserved queue) only when the address data in the packet header matches the reserved connection data (col. 11 ln. 34-39). Golden further clarifies that a queue is selected during the connection establishment (col. 14 ln. 63-67). Thus, Golden is different from Metin and teaches associating at least one queue with a reserved connection as recited by the claims.

8. Applicant argues D) Applicant states that the present invention ensures that reserved connections do not suffer at the expense of others (pg. 9).

9. In Response to D) It is submitted that this is also addressed by Golden. Golden teaches there are many advantages including that reservations can be maintained

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consistently in contrast to conventional networks in which reservations must contend for access (col. 13 ln. 10-21). Applicant's statement that the present invention transmits one packet from each reserved connection queue in rotation is directed to subject matter that is not in the claims. For at least these reasons, applicant's arguments are not persuasive.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Haddock et al. U.S. Pat. 6,678,248 B1 in view of Metin et al. US 2002/0031142 A1 and Golden et al. US 6,563,793 B1.

Regarding claim 1, Haddock discloses "a switch in packet communication" as a network switch (col. 3 ln. 46-48), "the switch is adapted to detect and forward packets that contain prioritized data" as a switch that handles quality of service (col. 3 ln. 48-50), "the switch comprises a plurality of output queues associated with egress ports of the switch that correspond to different priorities associated with received priority packets" as

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a switch that has a plurality of output queues (col. 6 ln. 7-8), “additional output queue that is established and associated with ... data packets” as a quality of service queue that is reserved for specific traffic (col. 6 ln. 7-15), and “each packet received [...] determining whether the packet is associated with the reserved connection and forwarding those packets to the additional output queue” as a switch that is able to look at the packet and make forwarding decisions (col. 4 ln. 38-48, col. 9 ln. 42-50).

Haddock does not disclose “packets that include requests for reserved connections” or “the switch [...] in response to a reserved connection request, determining whether there is sufficient bandwidth available to establish a reserved connection path within the network, and if so, establishing a reserved connection path and allocating the bandwidth for the reserved connection path” however these are taught by Metin as a packet switched network that uses Resource Reservation Protocol (RSVP) which would carry packets that include requests for reserved connections (pg. 4 paragraph 37) and switches that reserve resources if they are available and include control logic to perform QoS (paragraphs 36-40).

Metin does not explicitly disclose that only a single connection path is reserved at a given time, although one of ordinary skill in the art would understand this to occur when only 2 hosts are present. Nevertheless, the limitation “a plurality of additional output queues for reserved connections, wherein each additional output that is established and associated only with reserved connection data packets for one reserved connection path at a given time” is explicitly taught by Golden as establishing a single reserved connection path through a switch from one host to another (col. 9 ln.

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14 - col. 10 ln. 45) and maintaining separate ports/queues for reserved connection data (col. 11 ln. 7-39).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Haddock with the switches of Metin that are able to process RSVP. The reason for doing so would be to conform with network reservation protocols. Furthermore it would also have been obvious to allow the switch to reserve multiple paths as disclosed by Metin or restrict the switch to reserve a single path as taught by Golden. The motivation for doing so is to provide the necessary QoS. No modification of Metin is even required for doing so, rather instead of logically grouping several hosts, only two hosts are grouped (Metin paragraphs 6-10).

Regarding claim 2, Haddock discloses “the network comprises an Ethernet network” (col. 4 ln. 7).

Regarding claim 3, Haddock does not disclose “switches are coupled to one another in cascading fashion” however Metin discloses multiple switches in a path between hosts (pg. 4 paragraph 40) and such switches are capable of receiving reserved connection requests and reserving resources (pg. 4 paragraph 40).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Haddock with the switches of Metin that are able to process RSVP. The reason for doing so would be to conform with network reservation protocols.

Regarding claim 4, Haddock discloses “[switch having] an internal mapping table” (col. 8 ln. 65-67, col. 9 ln. 48-50).

Regarding claim 5, Haddock does not specifically disclose “forwarding the reserved connection request to all output ports when the internal mapping table does not include the requested destination address”. However it is well known to one of ordinary skill in the art at the time of the invention that when a switch does not know a destination address the packet may be forwarded to all ports (with the possible exception of the incoming port). Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to flood non-matching packets for the purpose of forwarding connection requests to all output ports when the requested destination address is unknown. The motivation for doing so is to enhance packet forwarding.

Regarding claim 6, Haddock does not disclose “switch is operable to generate a signal indicating denial of bandwidth allocation back toward the requesting device” however this is taught by Metin as a switch that runs RSVP would necessarily be able to send Path-Err messages upstream (pg. 4 paragraphs 37, 39)

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Haddock with the switches of Metin that are able to process RSVP. The reason for doing so would be to conform with network reservation protocols.

Regarding claim 7, Haddock discloses “the switch operates at one of service layer 2 and service layer 3” as a switch that uses layer 2 and layer 3 information (col. 4 ln. 38-40).

Regarding claim 8, Haddock does not disclose using RSVP however this is taught by Metin (pg. 4 paragraph 37).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Haddock with the switches of Metin that are able to process RSVP. The reason for doing so would be to conform with network reservation protocols.

Regarding claim 9, Haddock discloses “switch comprising: an input for receiving packets from one of the at least two end stations” as network switch with ports (col. 3 ln. 46-48), “a plurality of out queues [that correspond to priorities of packets]” as a number of quality service queues (col. 3 ln. 48-50), “at least one additional output queue associated with reserved connection data packets” as a quality of service queue that is reserved for specific traffic (col. 6 ln. 7-15), “a packet sorter” as a forwarding

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database (col. 4 ln. 38-48). Haddock does not disclose “detector for detecting whether the received packet includes a request for a reserved connection” nor “allocator [for determining and allocating sufficient bandwidth]” however these are taught by Metin as a switch that handles RSVP which includes reserved connection requests and control logic for performing QoS (paragraphs 36-37) and a switch that can allocate the necessary resources (paragraphs 39-40).

Metin does not explicitly disclose that only a single connection path is reserved at a given time, although one of ordinary skill in the art would understand this to occur when only 2 hosts are present. Nevertheless, the limitation “a plurality of additional output queues for reserved connections, wherein each additional output that is established and associated only with reserved connection data packets for one reserved connection path at a given time” is explicitly taught by Golden as establishing a single reserved connection path through a switch from one host to another (col. 9 ln. 14 - col. 10 ln. 45) and maintaining separate queues for reserved connection data (col. 11 ln. 56-62).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Haddock with the switches of Metin that are able to process RSVP. The reason for doing so would be to conform with network reservation protocols. The motivation for combining Golden with Metin is the same as in claim 1.

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Regarding claim 10, it is substantially similar to claim 3 and is rejected for the same reasons.

Regarding claim 11, Haddock discloses “switch examines at least one of MAC address information and IP address information of each packet” as a switch that uses layer 2 and layer 3 information to make decisions (col. 4 ln. 38-42).

Regarding claim 12, Haddock discloses “switch compares the input packet address information with pair addresses stored in memory” as a switch using a forwarding database (col. 4 ln. 38-48), and “if the pairs match [...] packet is sent to the at least one additional output queue” as a switch that sends a matching packet to a specific output port based on quality of service (col. 3 ln. 50-54, col. 4 ln. 46-48).

3. Claims 13-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Metin in view of Golden.

Regarding claim 13, Metin discloses “a first network switch device receiving and detecting prioritized packets and packets that include requests for reserved connections” as a network with a switch which recognizes RSVP (pg. 4 paragraph 37), “forwarding the prioritized packets” as switches that forward packets (Fig. 2), “determining, by said first network switch device whether sufficient bandwidth is available [for establishing a path]” as a network switch in a path that determines and

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reserves the necessary resources (paragraphs 39-40). Metin does not explicitly disclose that only a single connection path is reserved at a given time, although one of ordinary skill in the art would understand this to occur when only 2 hosts are present. Nevertheless, the limitation “allocating, for a given time, one of a plurality of output queues ... for buffering only those reserved connection data packets” is explicitly taught by Golden as establishing a single reserved connection path through a switch from one host to another (col. 9 ln. 14 - col. 10 ln. 45) and maintaining separate queues for reserved connection data (col. 11 ln. 56-62).

It would have been obvious to one of ordinary skill in the art at the time of the invention to combine Metin with Golden. To do so only requires that hosts are logically grouped in groups of two. See the motivation to combine in the rejection of claim 1.

Regarding claim 14, Metin discloses “parsing in said first device header information [...] for determining whether the received packet is a bandwidth reservation request message” as a switch that is capable of using RSVP (pg. 4 paragraph 40) and recognizing reservation request messages (pg. 4 paragraph 39).

Regarding claim 15, Metin discloses “MAC addresses are stored and compared with packet information for determining reserved connection stream packets” as control logic and memory in a switch (pg. 3 paragraph 35, Fig. 1).

Regarding claim 16, Metin discloses "IP addresses are stored and compared with packet information for determining reserved connection stream packets" as control logic and memory in a switch (pg. 3 paragraph 35, Fig. 1).

Regarding claim 17, Metin discloses "the first network switch device forwarding the reserved connection request to a second network switch device in the path downstream" as passing along the reservation request (paragraph 40, Fig. 3 step 16A).

Conclusion

4. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

McCormack et al. US 2004/0213206 A1 discloses reserving queues for specific traffic (paragraph 47).

Huang et al. US 2003/0223442 A1 discloses reserving a portion of a queue for a particular data flow (abstract).

Isoyama et al. US 6,570,873 B1 discloses a system for scheduling traffic (abstract).

5. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JASON RECEK whose telephone number is (571)270-1975. The examiner can normally be reached on Mon - Fri 9:00am-5:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Saleh Najjar can be reached on (571) 272-4006. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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